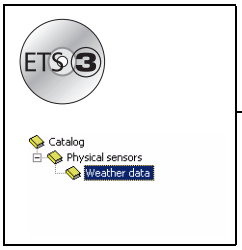
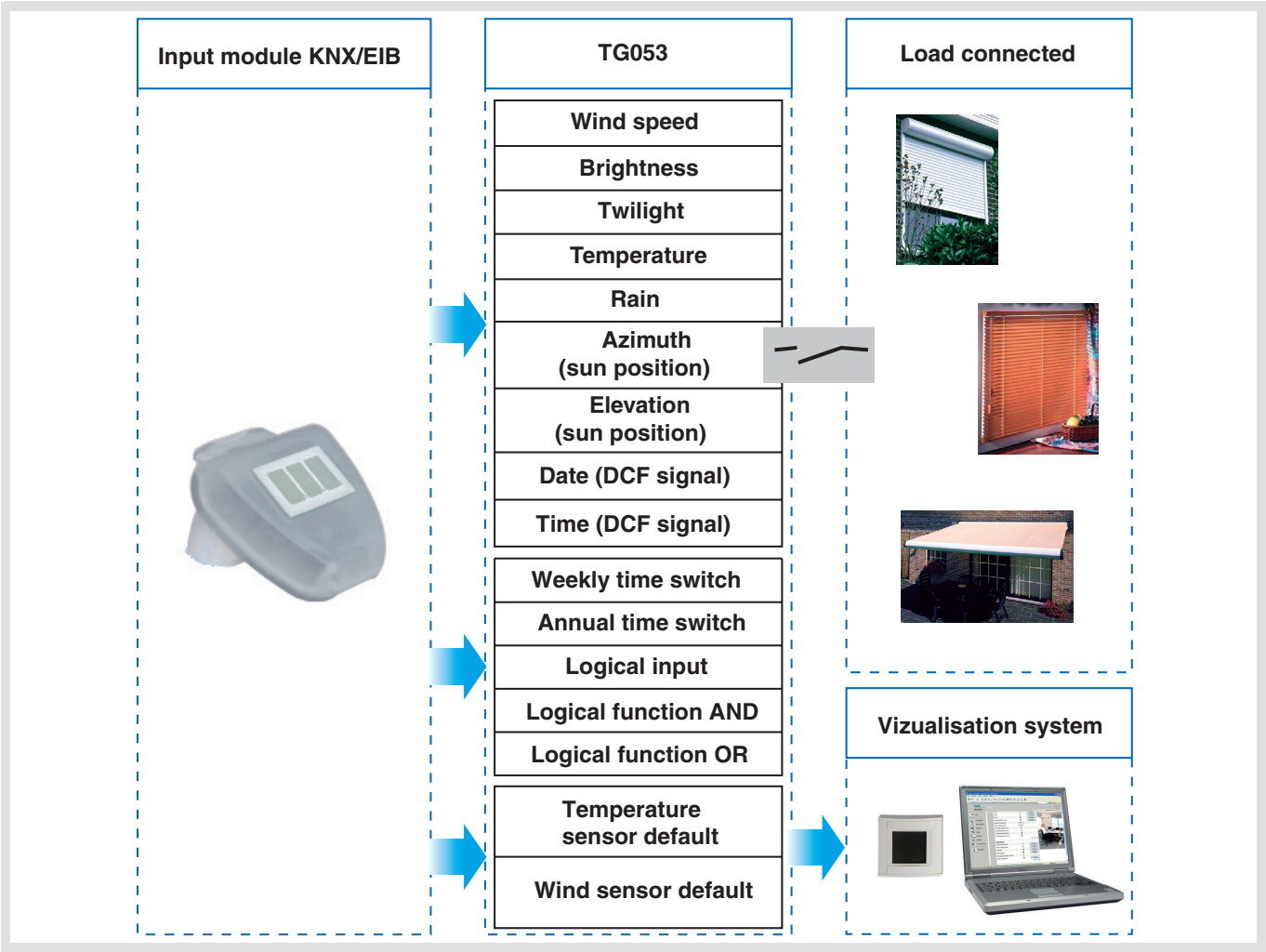


Tebis application software

TG053 KNX Weather station

	Product reference	Product designation
	TG053	TG053 KNX Weather station



Summary

1. Presentation of the functions

The TG053 weather station measures the temperature, the wind speed and the brightness.
It detects rain and receives the DCF77 radio signal for date and time.
The sun position is calculated from the date, the time and the site location input via parameters; and can be sent on the bus.
The measured values are sent on the KNX/EIB bus as physical values in the EIS 5 format.

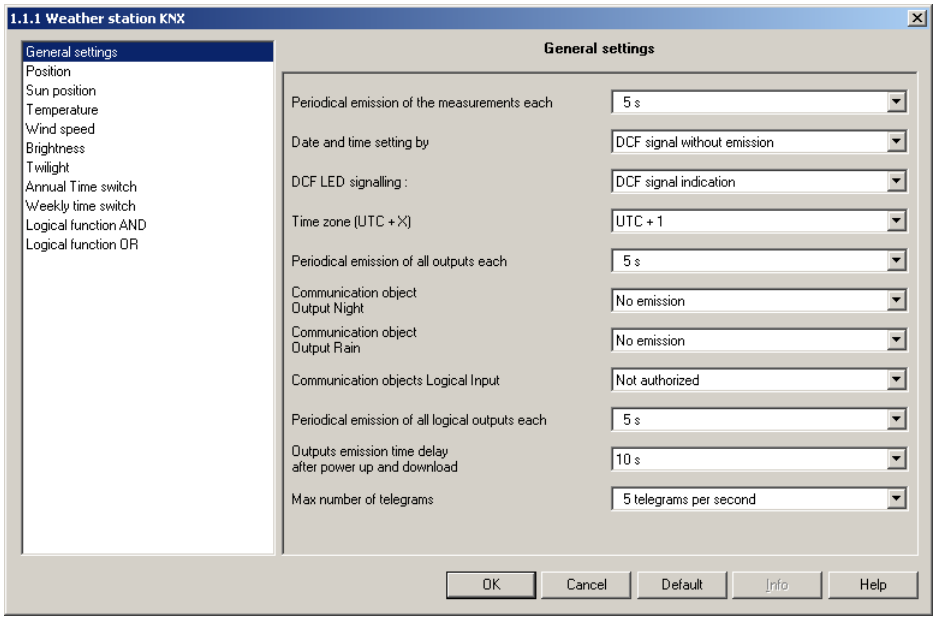
Various switching outputs (communication objects) are available to the measured and calculated values; they are switched according to their thresholds. The thresholds themselves can be set alternatively by means of parameters or via communication objects.
The TG053 weather station includes an annual time switch and a weekly time switch. The outputs of the time switch can be used as communication objects. The weekly time switch switches up to 4 different time periods for each day of the week. In addition, the annual time switch allows defining 3 additional time periods throughout the year, during which up to 2 ON/OFF switchings can be carried out daily. The switching times may be set either by means of parameters or via communication objects.
In addition, 8 AND logical functions and 8 OR logical functions, each with 4 inputs, are available. All switching events, as well as 8 logical inputs (communication objects) can be used as inputs for the logical functions. The output of each function can be configured either as 1 bit or as 2 x 8 bits.

2. Configuration and parameters

2.1 Objects list

Number	Name	Object Function	Length	C	R	W	T	U	Priority
3	Output night	1 = Night | 0 = Day	1 bit	C	R	-	T	-	. Low
4	Output rain		1 bit	C	R	-	T	-	. Low
5	Logical input no. 1		1 bit	C	R	W	-	-	. Low
6	Logical input no. 2		1 bit	C	R	W	-	-	. Low
7	Logical input no. 3		1 bit	C	R	W	-	-	. Low
8	Logical input no. 4		1 bit	C	R	W	-	-	. Low
9	Logical input no. 5		1 bit	C	R	W	-	-	. Low
10	Logical input no. 6		1 bit	C	R	W	-	-	. Low
11	Logical input no. 7		1 bit	C	R	W	-	-	. Low
12	Logical input no. 8		1 bit	C	R	W	-	-	. Low
13	Sun position azimut		2 Byte	C	R	-	T	-	. Low
14	Sun position elevation		2 Byte	C	R	-	T	-	. Low
20	Temperature measurement		2 Byte	C	R	-	T	-	. Low
21	Min/max temperature request	Request	1 bit	C	R	W	-	-	. Low
22	Lowest temperature measurement	Emission of min temperature	2 Byte	C	R	-	T	-	. Low
23	Highest temperature measurement	Emission of max temperature	2 Byte	C	R	-	T	-	. Low
24	Max temperature reset	Temperatures reset	1 bit	C	R	W	-	-	. Low
37	Wind speed measurement		2 Byte	C	R	-	T	-	. Low
38	Maximal wind speed request	Request	1 bit	C	R	W	-	-	. Low
39	Highest wind speed measurement	Emission of max wind speed	2 Byte	C	R	-	T	-	. Low
40	Max wind speed reset	Wind speed reset	1 bit	C	R	W	-	-	. Low
50	Brightness measurement		2 Byte	C	R	-	T	-	. Low
62	Output annual time switch	Period 1; Sequence 1	1 bit	C	R	-	T	-	. Low
65	Output annual time switch	Period 1; Sequence 2	1 bit	C	R	-	T	-	. Low
68	Output annual time switch	Period 2; Sequence 1	1 bit	C	R	-	T	-	. Low
71	Output annual time switch	Period 2; Sequence 2	1 bit	C	R	-	T	-	. Low
74	Output annual time switch	Period 3; Sequence 1	1 bit	C	R	-	T	-	. Low
77	Output annual time switch	Period 3; Sequence 2	1 bit	C	R	-	T	-	. Low
86	Output weekly time switch	Monday 1	1 bit	C	R	-	T	-	. Low
87	Output weekly time switch	Monday 2	1 bit	C	R	-	T	-	. Low
88	Output weekly time switch	Monday 3	1 bit	C	R	-	T	-	. Low
89	Output weekly time switch	Monday 4	1 bit	C	R	-	T	-	. Low
98	Output weekly time switch	Tuesday 1	1 bit	C	R	-	T	-	. Low
99	Output weekly time switch	Tuesday 2	1 bit	C	R	-	T	-	. Low
100	Output weekly time switch	Tuesday 3	1 bit	C	R	-	T	-	. Low
101	Output weekly time switch	Tuesday 4	1 bit	C	R	-	T	-	. Low
110	Output weekly time switch	Wednesday 1	1 bit	C	R	-	T	-	. Low
111	Output weekly time switch	Wednesday 2	1 bit	C	R	-	T	-	. Low
112	Output weekly time switch	Wednesday 3	1 bit	C	R	-	T	-	. Low
113	Output weekly time switch	Wednesday 4	1 bit	C	R	-	T	-	. Low
122	Output weekly time switch	Thursday 1	1 bit	C	R	-	T	-	. Low
123	Output weekly time switch	Thursday 2	1 bit	C	R	-	T	-	. Low
124	Output weekly time switch	Thursday 3	1 bit	C	R	-	T	-	. Low
125	Output weekly time switch	Thursday 4	1 bit	C	R	-	T	-	. Low
134	Output weekly time switch	Friday 1	1 bit	C	R	-	T	-	. Low
135	Output weekly time switch	Friday 2	1 bit	C	R	-	T	-	. Low
136	Output weekly time switch	Friday 3	1 bit	C	R	-	T	-	. Low
137	Output weekly time switch	Friday 4	1 bit	C	R	-	T	-	. Low
162	Logical function AND no. 1	Output	1 bit	C	R	-	T	-	. Low
216	Output twilight threshold 1		1 bit	C	R	-	T	-	. Low
219	Temperature sensor default	Output	1 bit	C	R	-	T	-	. Low
220	Wind sensor default	Output	1 bit	C	R	-	T	-	. Low
221	Date and time synchronisation	Output	1 bit	C	R	-	T	-	. Low

2.2 General settings



Screen 1

Periodic emission of the measurements each	5 s ... 2 h
Date and time setting by	DCF signal without emission / DCF signal and periodical emission / DCF signal and emission on request / DCF signal and emission on request + periodical / Communication objects and no emission.

When date and time are set by means of the DCF signal

The current date and time can, in a first phase, be input via ETS. The weather station will use this data until it receives a valid DCF signal for the first time.

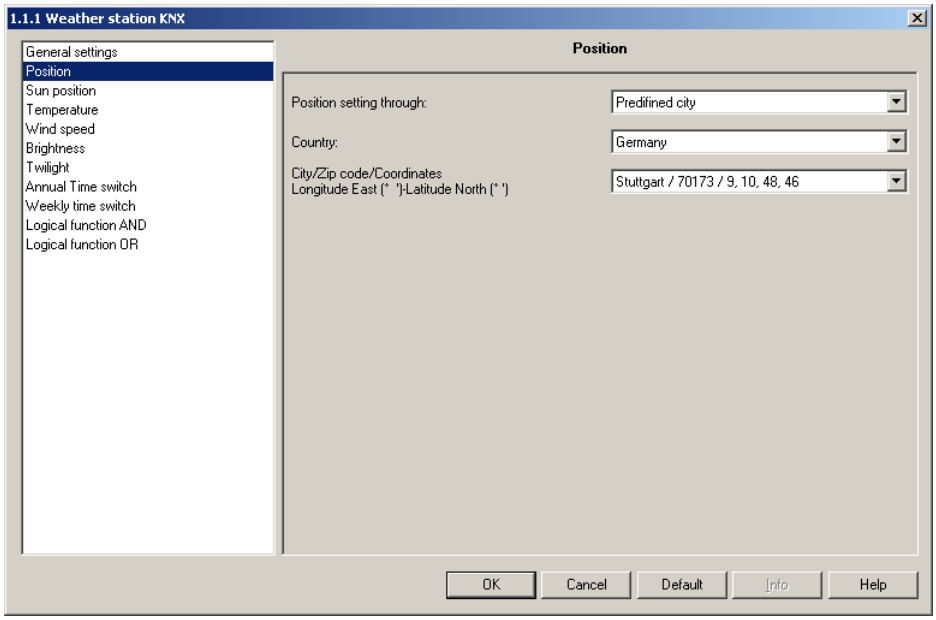
When date and time are set via a communication object

No date change is allowed between the sending of the date and the sending of the time, both must be sent the same day to the weather station.
At the first start-up, date and time must be sent directly one after the other to allow the internal clock of the device to start.

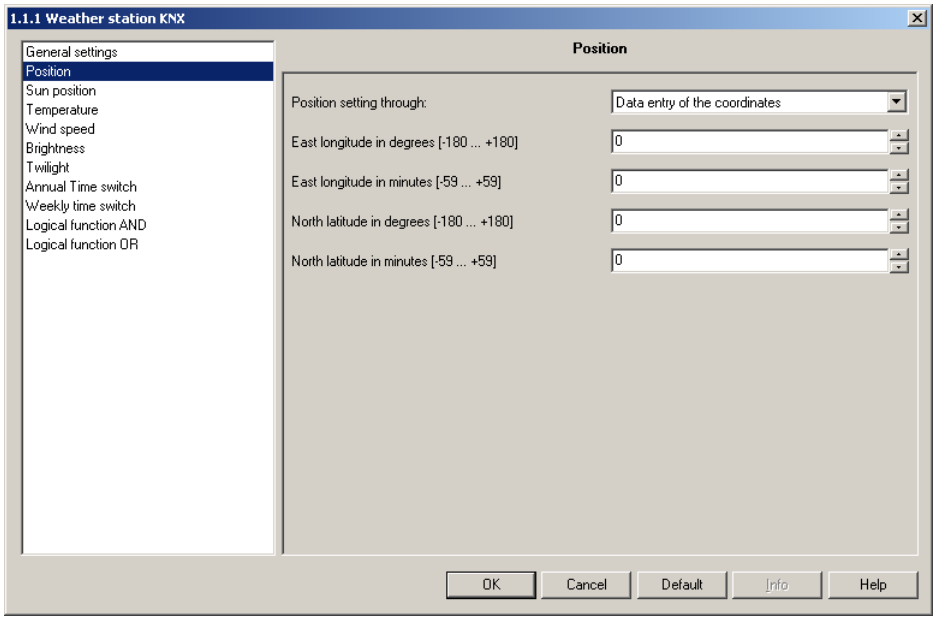
DCF LED signalling	DCF signal indication / Always OFF
Time zone	UTC -1 / UTC / UTC +1/ UTC +2 / UTC +3
Periodic emission of outputs	5 s ... 2 h
Communication object Output night (The output reacts with a delay of approximately 1 minute, night is detected below 10 lux)	no emission - / if modification - / if modification, emission of inverted status - / If modification and periodical - / if modification, émission of inverted status + periodical (as for all switching outputs)
Communication object Output rain (The output is reset after approximately 8 minutes without rain)	(as for the Night switching output)
Communication objects logical input	not authorized / authorized
Periodical emission of logical outputs	5 s ... 2 h
Outputs emission time delay after power up and download	5 s ... 2 h
Max number of telegrams	1 / 2 / 3 / 5 / 10 / 20 telegrams per second

2.3 Position

When the position is defined by the coordinates of a town:



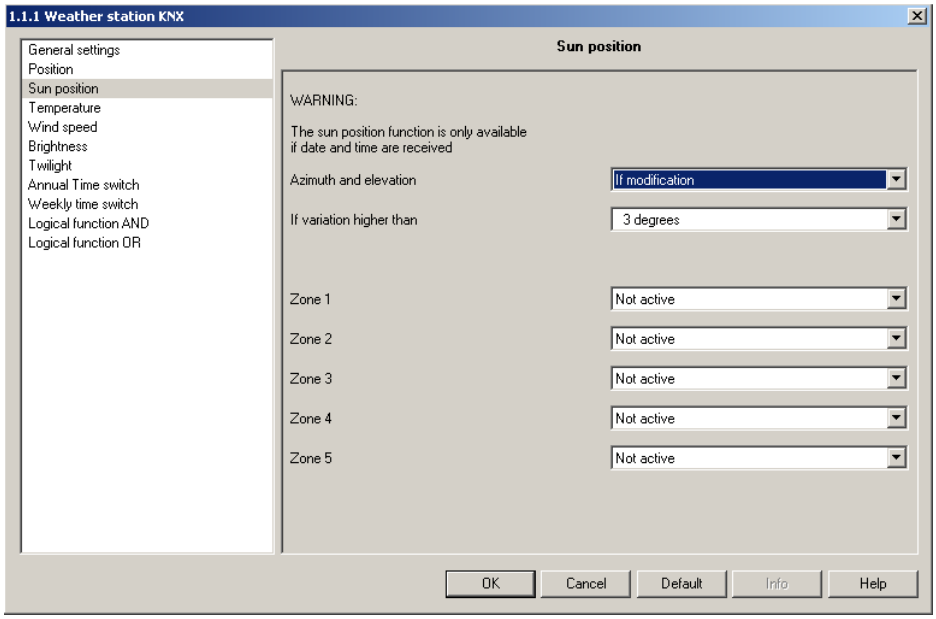
When the position coordinates are input freely:



The position indication is required to use it, with the date and time, to calculate the sun position.

Country	Germany / Austria / Switzerland / Other countries
City / ZIP code / Coordinates	30 cities in Germany 5 cities in Austria 4 cities in Switzerland 7 cities in other countries

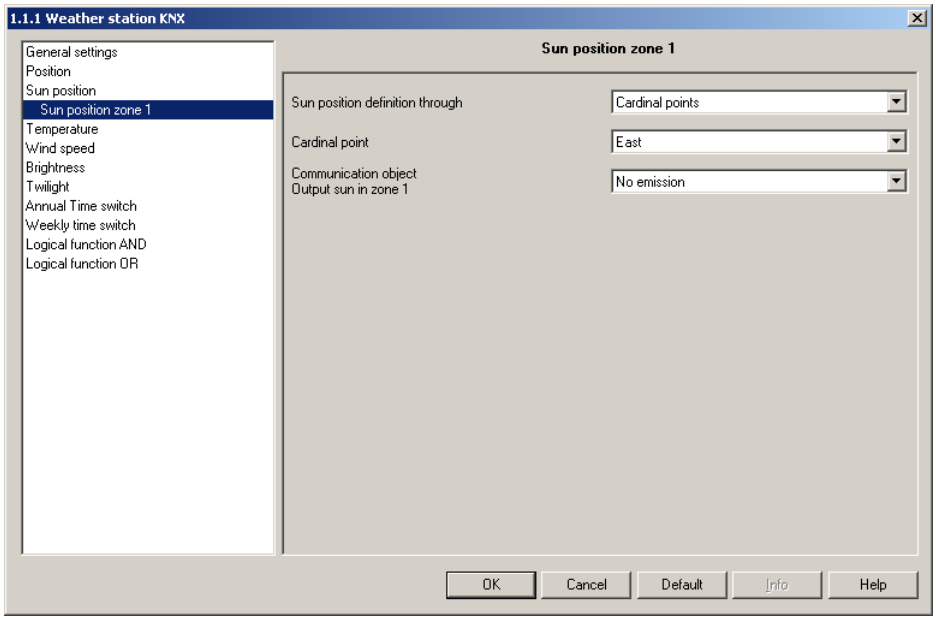
2.4 Sun position



Azimuth and elevation	no emission - / periodical emission - / if modification - / if modification + periodical
If variation higher than	1 ... 15 degrees
Zone 1/ 2 / 3 / 4 / 5	Not active / Active

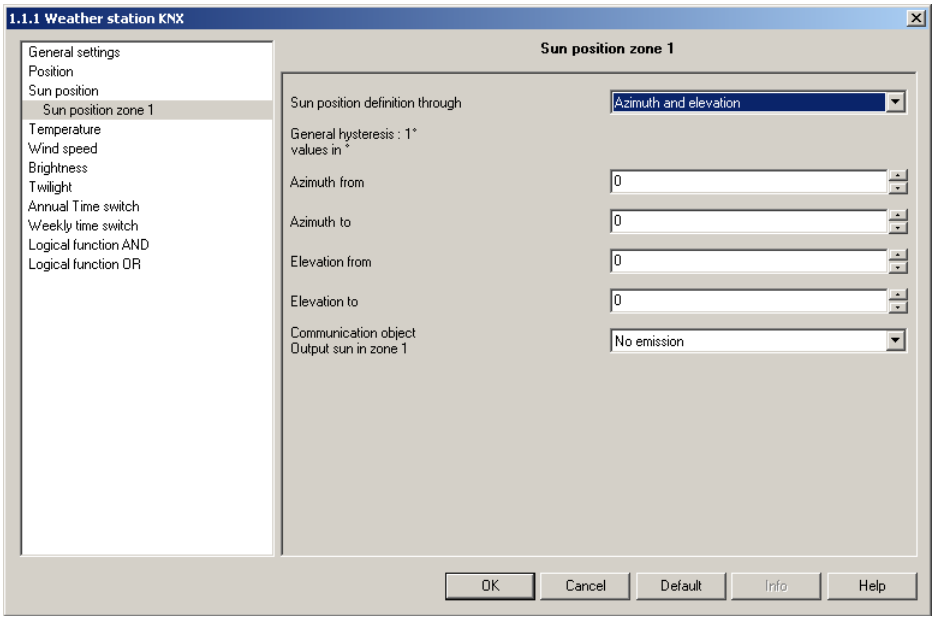
Sun position zone 1 / 2 / 3 / 4 / 5

When the sun position is defined through cardinal points:



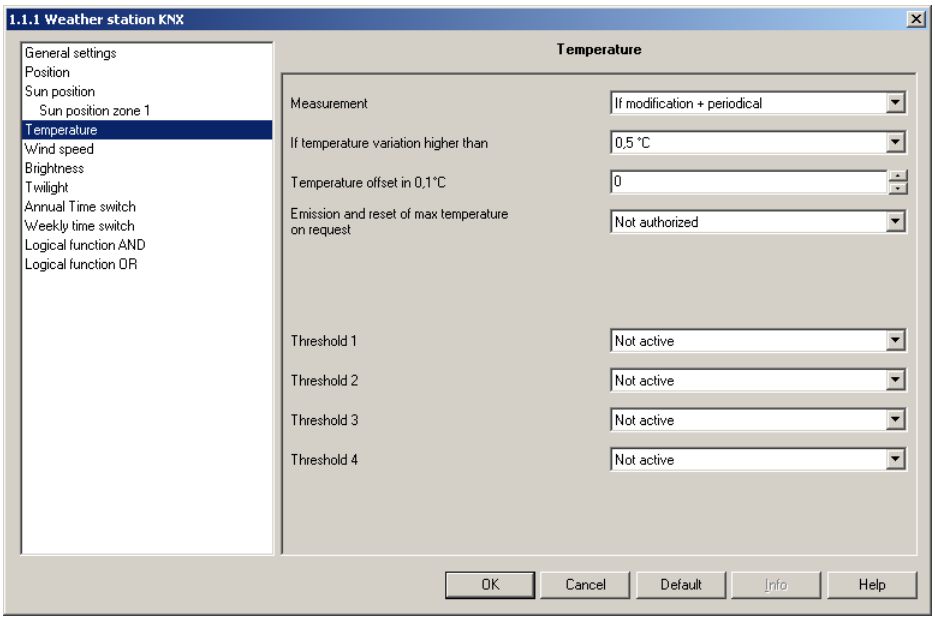
Sun position definition through	Cardinal points / Azimuth and elevation
Cardinal points	East / South East / South / South West / West
Communication object Output sun in zone 1 / 2 / 3 / 4 / 5	(as for the Night switching output)

When the sun position is defined through azimuth and elevation:



Azimuth from	0 ... 360 degrees
Azimuth to	0 ... 360 degrees
Elevation from	0 ... 90 degrees
Elevation to	0 ... 90 degrees
Communication object Output sun in zone 1 / 2 / 3 / 4 / 5	(as for the Night switching output)

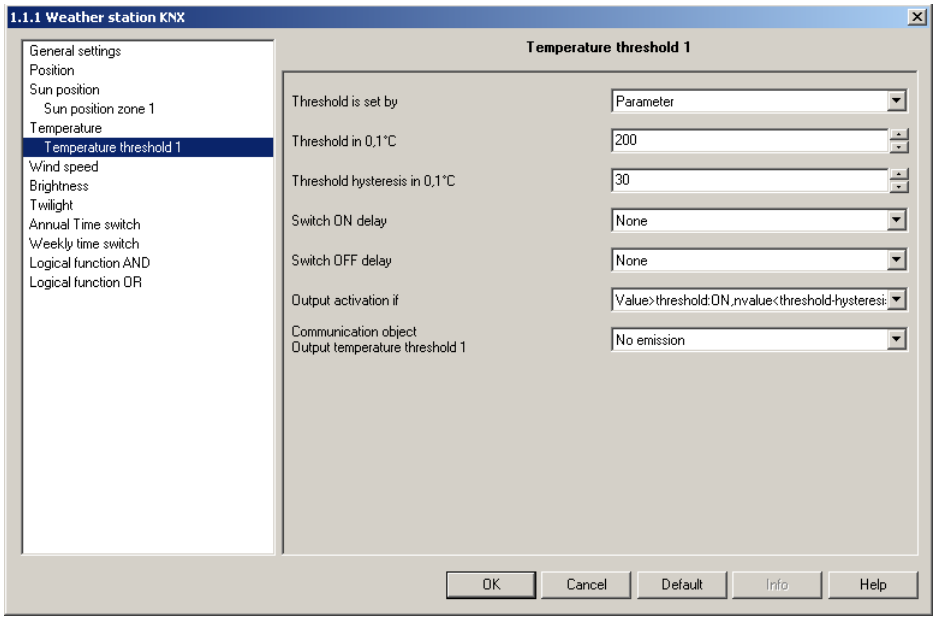
2.5 Temperature



Measurement	no emission - / periodical emission - / if modification - / if modification + periodical
If temperature variation higher than	0.5 °C / 1 °C / 2 °C / 3 °C / 4 °C / 5 °C
Temperature offset in 0.1°C	-50 ... 50
Threshold 1 / 2 / 3 / 4	Not active / Active
Emission and reset of min. and max. temperature on request	not authorized / authorized

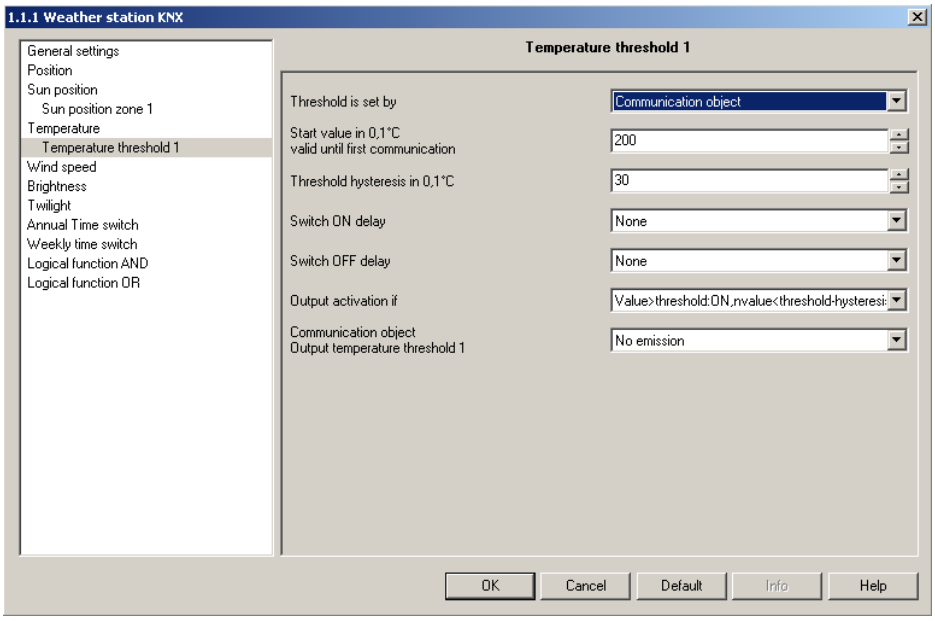
Temperature threshold 1 / 2 / 3 / 4

When the threshold is defined by means of parameters:



Threshold is set by	Parameters
Threshold in 0.1°C	-300 ... 800

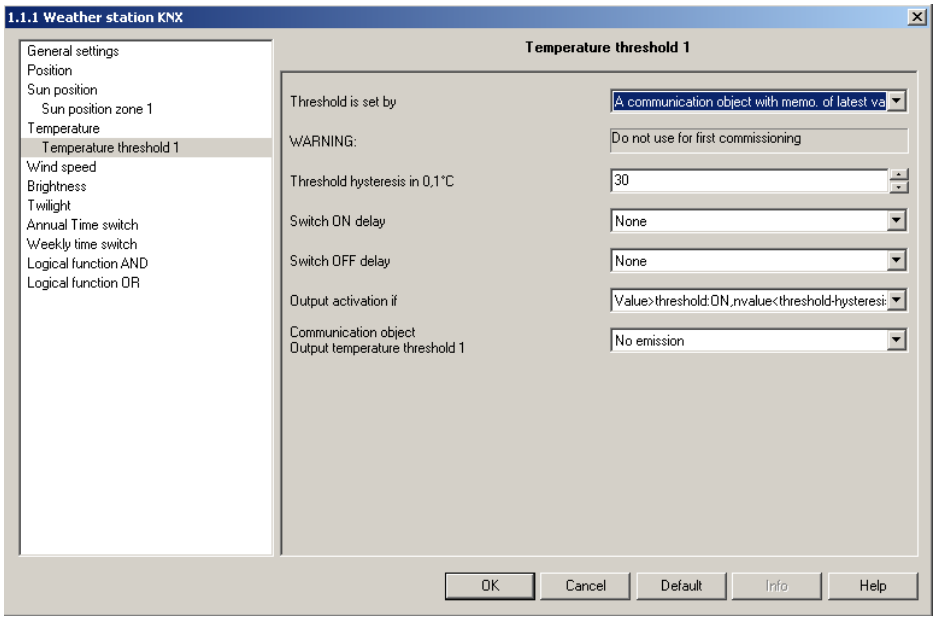
When the threshold is set by means of a communication object, a threshold must be defined at the first start-up; this threshold will remain in force until the first communication of a valid threshold:



Threshold is set by	Communication object
Start value in 0.1°C valid until 1.st communication	-300 ... 800

The last thresholds set by means of communication objects are saved in EEPROM, they are maintained even in case of a power failure and they are available as soon as power is restored.

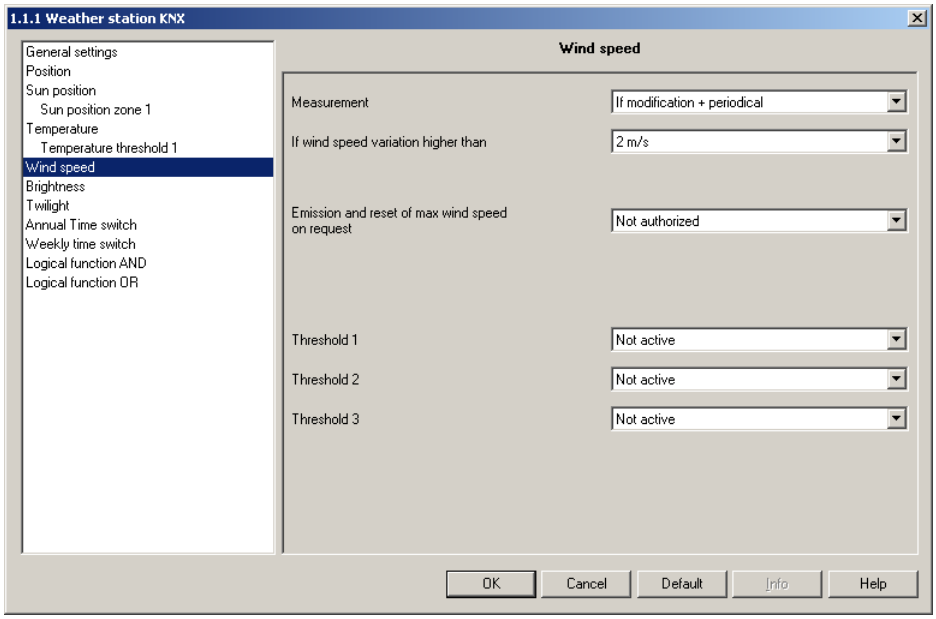
In case of already started weather station, the last threshold communicated can be used:



With this setting, if a threshold was set once by means of a parameter or a communication object, the last threshold set remains active until a new threshold is sent via a communication object.

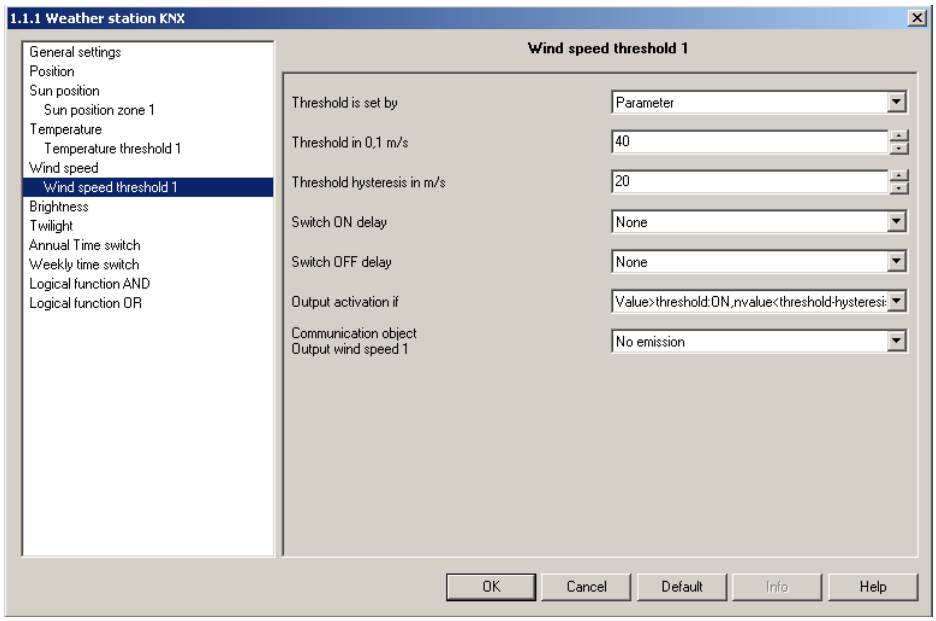
Threshold hysteresis in 0.1°C	0 ... 100
Swith ON delay	Not used / 1 s ... 2 h
Switch OFF delay	Not used / 1 s ... 2 h
Output activation if	value>threshold : ON, value<threshold-hysteresis:OFF / value<threshold : ON, value>threshold+hysteresis:OFF
Communication object output temperature threshold 1 / 2 / 3 / 4	(as for the Night switching output)

2.6 Wind speed



Measurement	no emission - / periodical emission - / if modification - / if modification + periodical
If wind speed variation higher than	1 m/s ... 4 m/s
Threshold 1 / 2 / 3	Not active / Active
Emission and reset of max. wind speed on request	not authorized / authorized

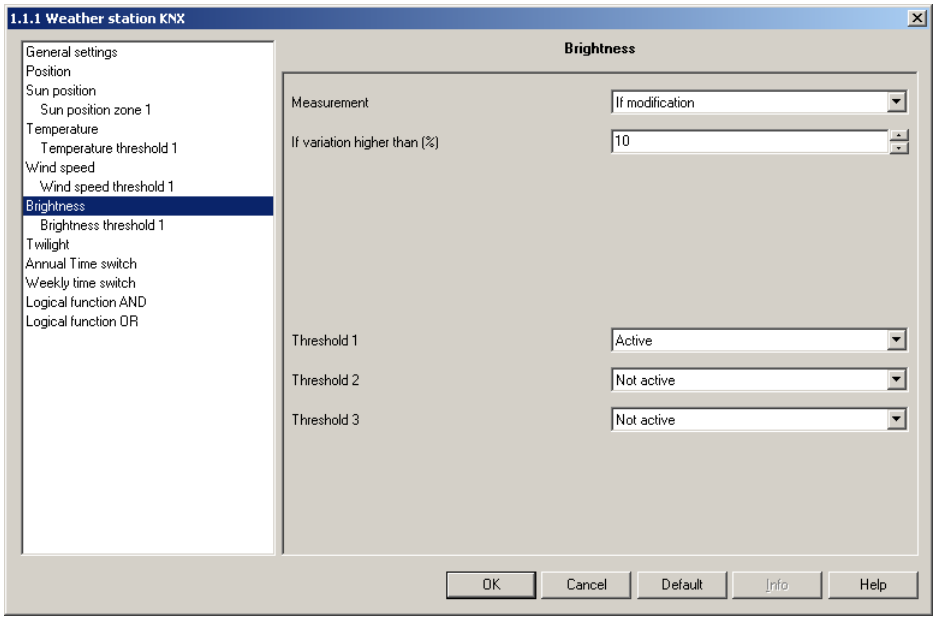
Wind speed threshold 1 / 2 / 3



Threshold / Start value in 0.1m/s	0 ... 350
Threshold hysteresis in 0.1m/s	0 ... 250

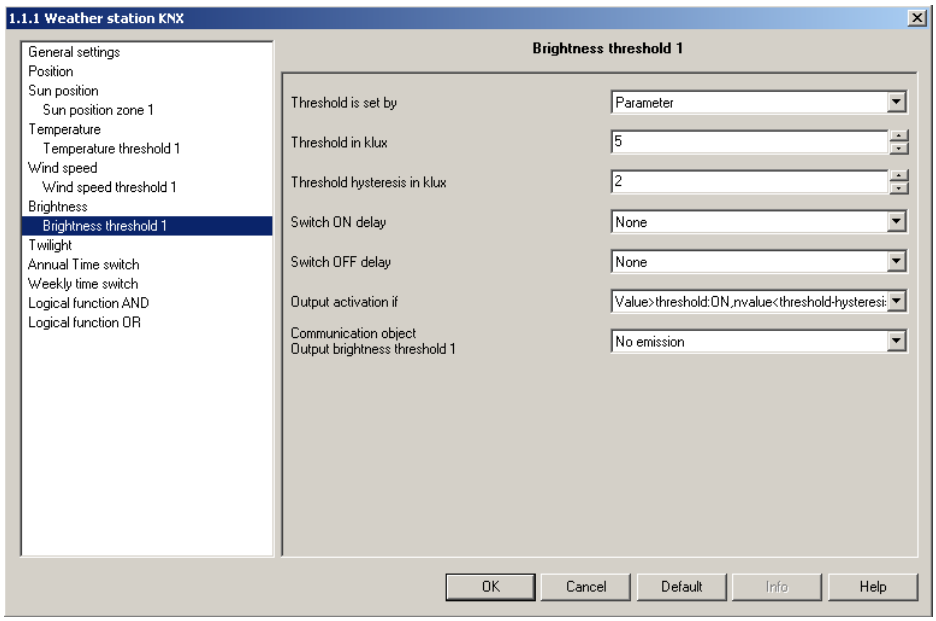
All other parameters correspond to those of the temperature thresholds (see there).

2.7 Brightness



Measurement	no emission - / periodical emission - / if modification - / if modification + periodical
If variation higher than (in %)	1 ... 50
Threshold 1 / 2 / 3	Not active / Active

Brightness threshold 1 / 2 / 3

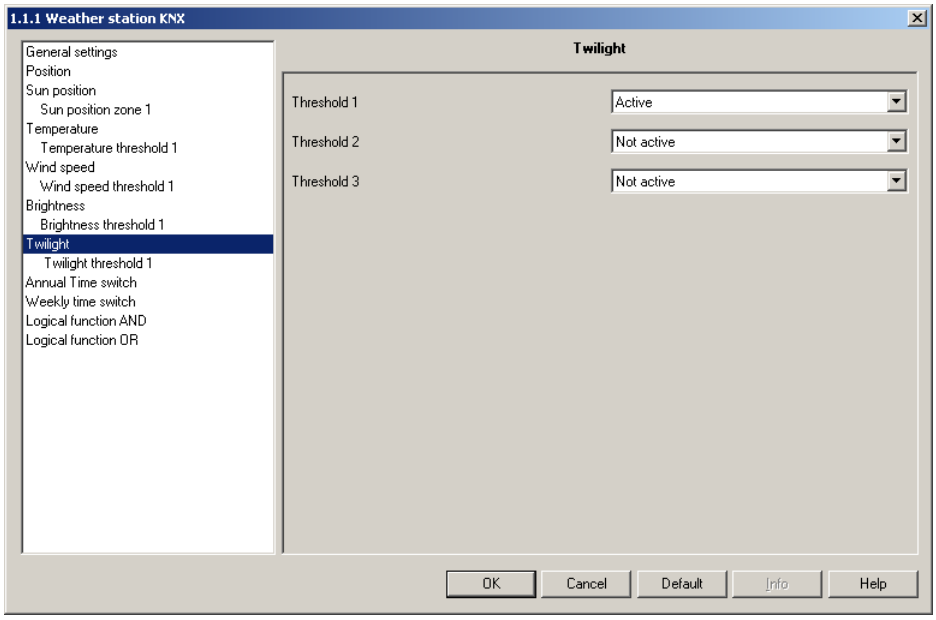


Threshold / Start value in klux	1 ... 99
Threshold hysteresis in klux	0 ... 99

All other parameters correspond to those of the temperature thresholds (see there).

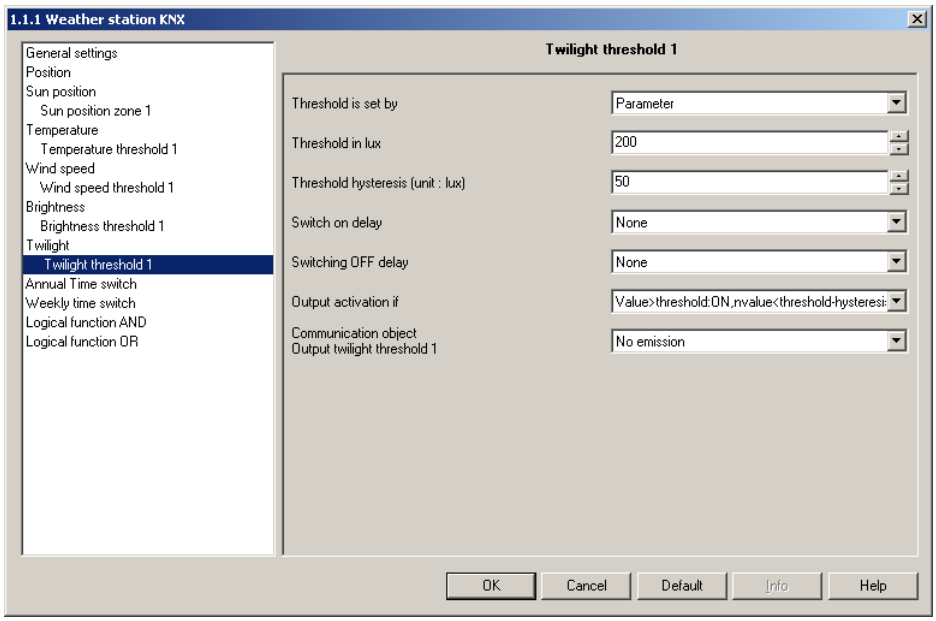
2.8 Twilight

Twilight



Threshold 1 / 2 / 3	Not active / Active

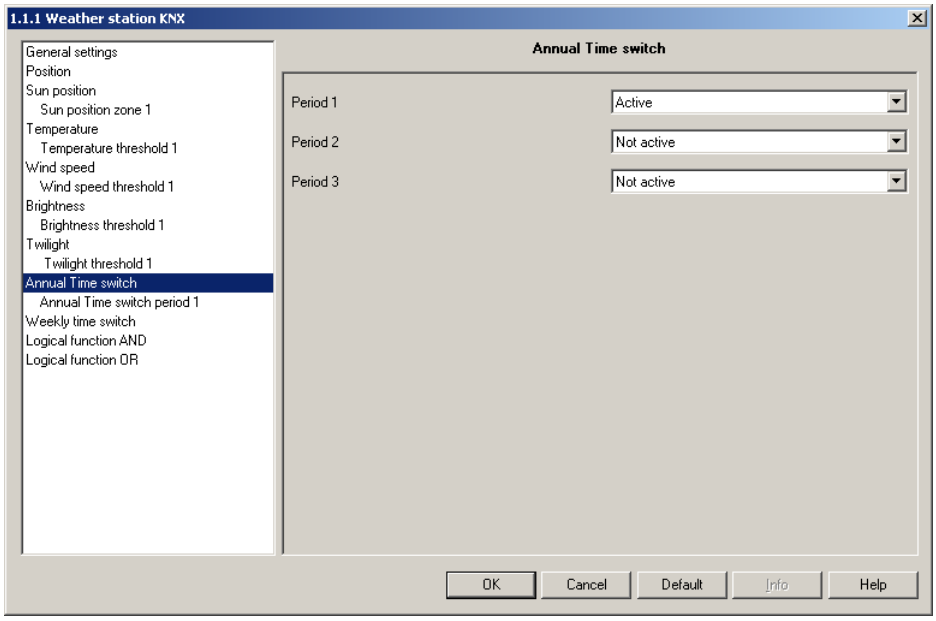
Twilight threshold 1 / 2 / 3



Threshold / Start value in lux	1 ... 1000
Threshold hysteresis in lux	0 ... 1000

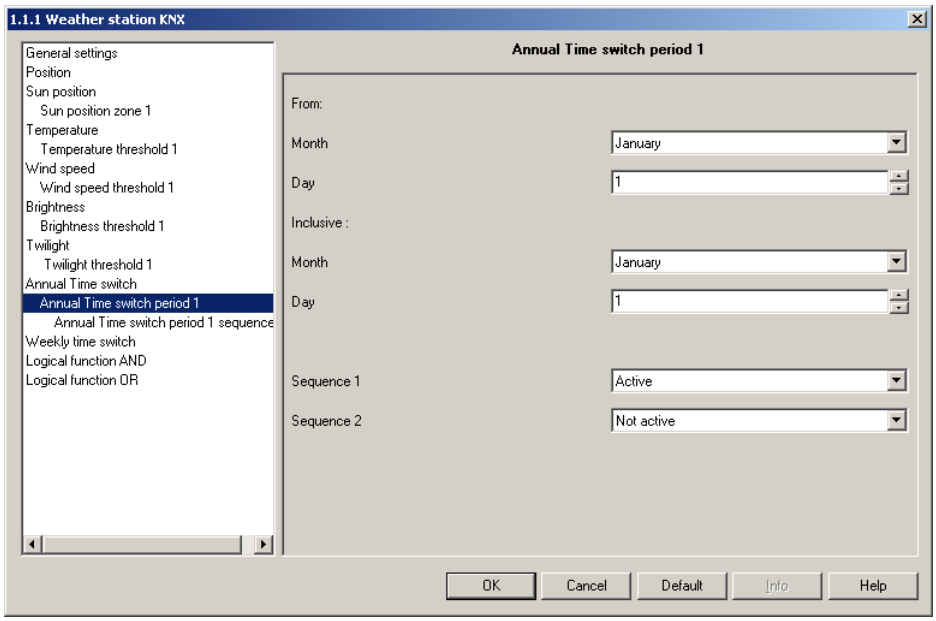
All other parameters correspond to those of the temperature thresholds (see there).

2.9 Annual time switch



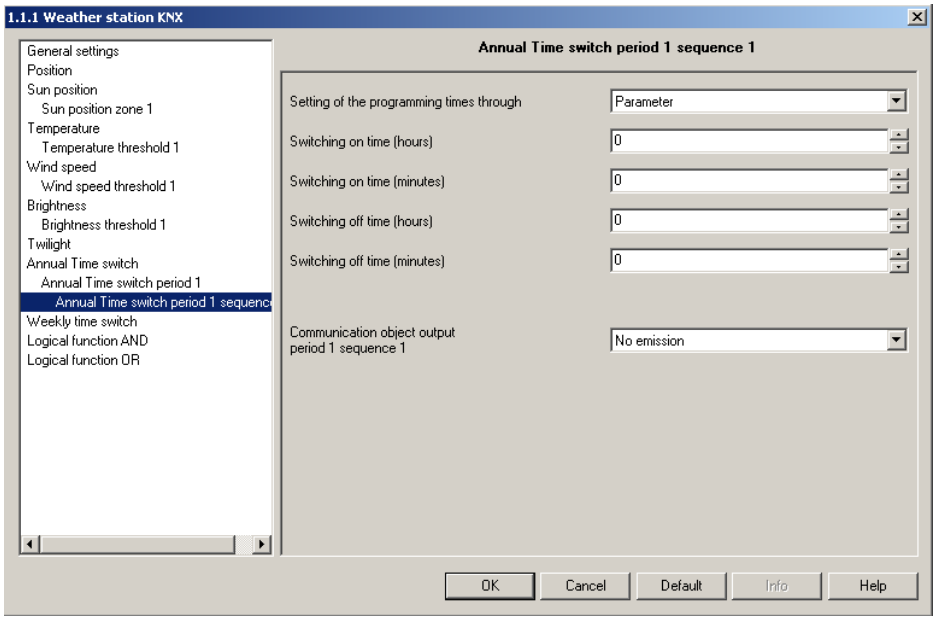
Period 1 / 2 / 3	Not active / Active

Annual time switch period 1 / 2 / 3



From	
Month	January ... December
Day	1 ... 29 / 1 ... 30 / 1 ... 31 (depending on the month)
Inclusive	
Month	January ... December
Day	1 ... 29 / 1 ... 30 / 1 ... 31 (depending on the month)
Sequence 1	Not active / Active
Sequence 2	Not active / Active

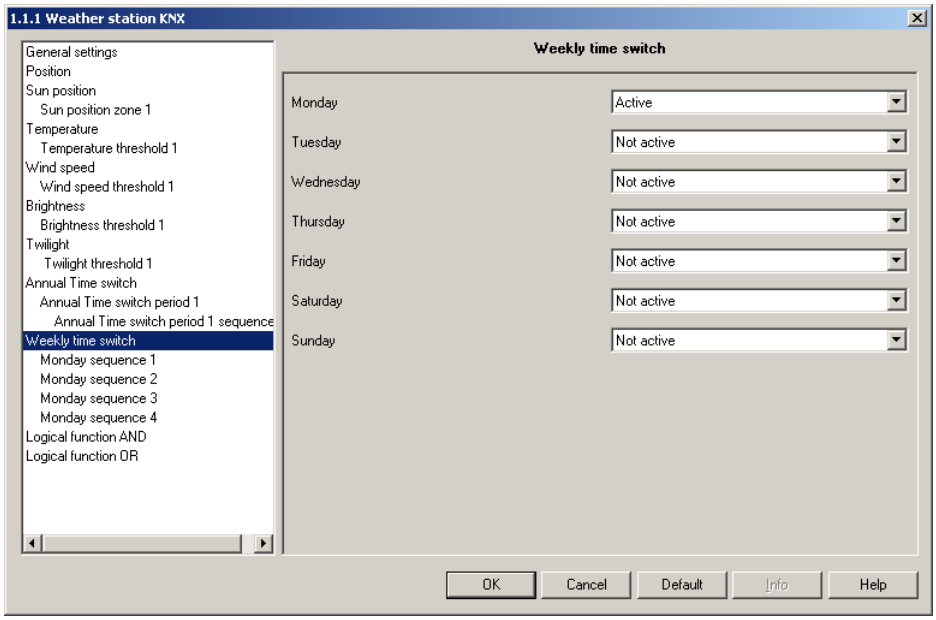
Annual time switch period 1 / 2 / 3, Sequence 1 / 2



Setting of the programming times through	Parameters / Communication objects
Swith ON time hours	0 ... 23
Swith ON time Minutes	0 ... 59
Switch OFF time hours	0 ... 23
Switch OFF time Minutes	0 ... 59
Emission of communication objects output period 1 / 2 / 3, sequence 1 / 2	(as for the Night switching output)

2.10 Weekly time switch

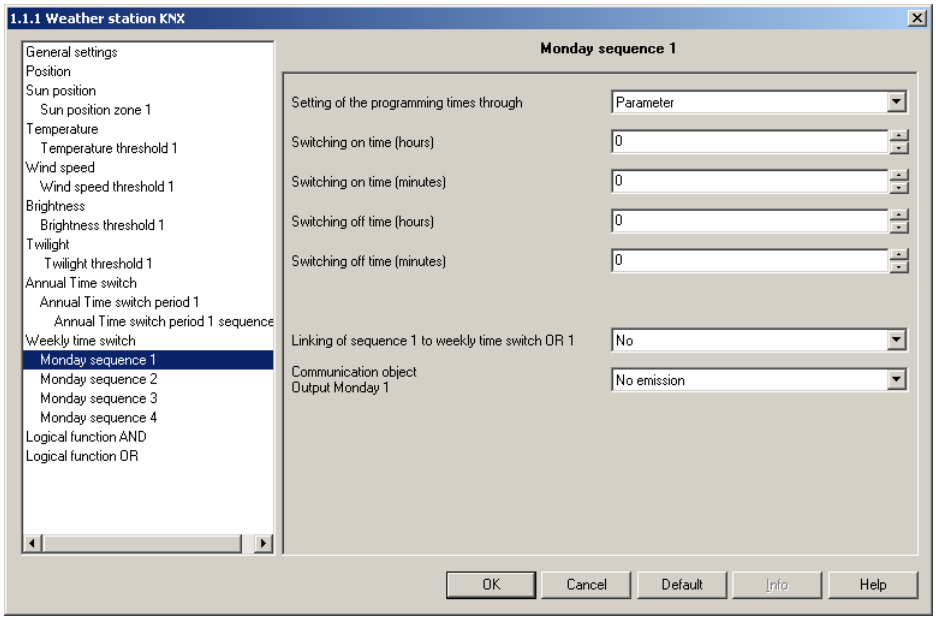
Weekly time switch



Monday ... Sunday	Not active / Active

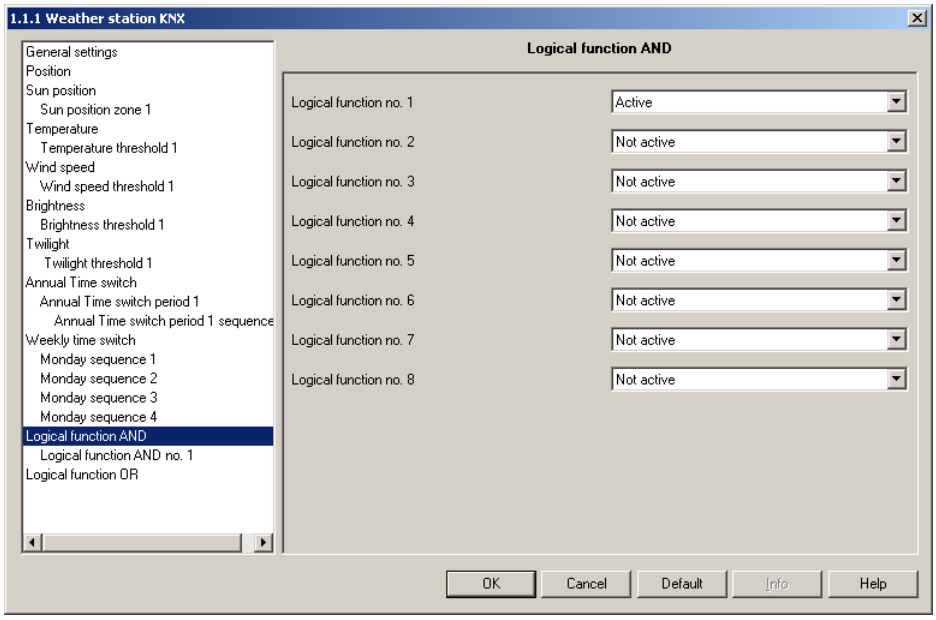
All 4 sequences of the selected day are always activated together.

Weekly time switch, Mon, Tue, Wed, Thu, Fri, Sat, Sun Sequence 1 ... 4



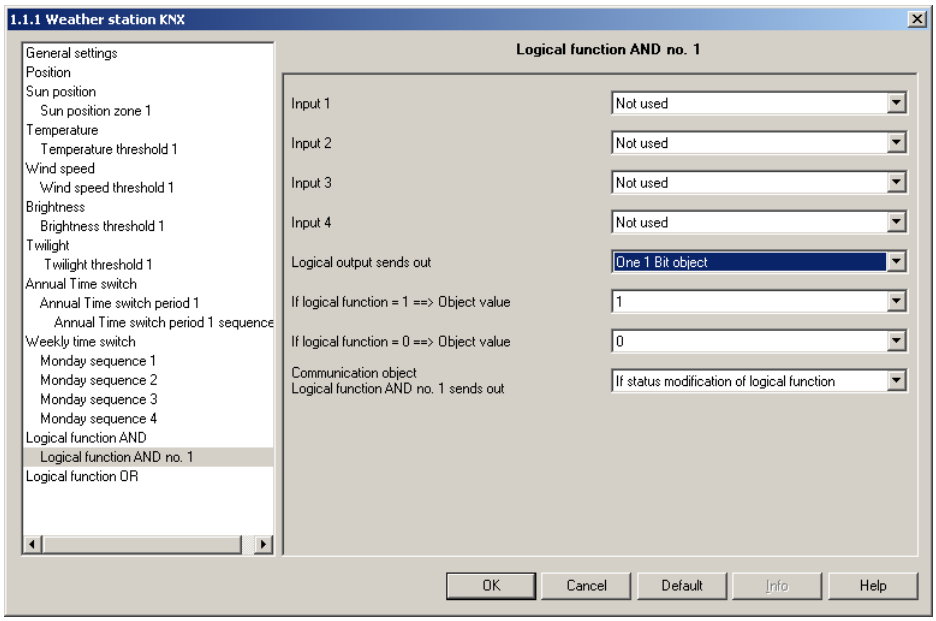
Setting of the programming times through	Parameters / Communication objects
Swith ON time hours	0 ... 23
Swith ON time Minutes	0 ... 59
Switch OFF time hours	0 ... 23
Switch OFF time Minutes	0 ... 59
Linking of sequence 1 / 2 / 3 /4 to weekly time switch OR 1 / 2 / 3 / 4	Yes / No
Emission of communication object Output Monday 1 / 2 / 3 / 4	(as for the Night switching output)

2.11 Logical function AND



Logical function 1 to 8	Not active / Active

Logical function AND 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8

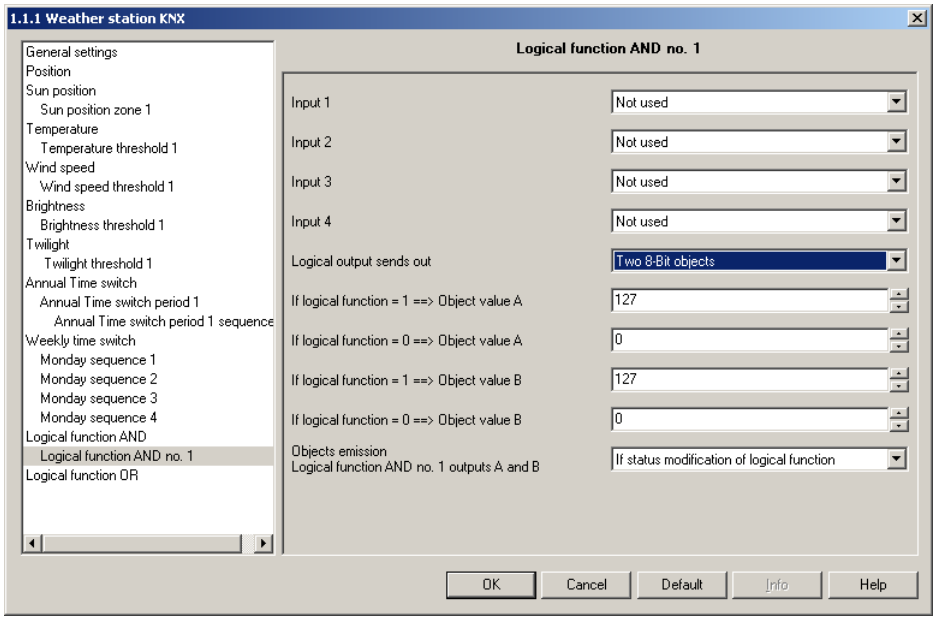


Input 1. / 2. / 3. / 4.	not used / all switching events supplied by the weather station (see "Linking inputs of the AND logical function")
Logical output sends out	no emission / One 1 bit object / Two 8 bit objects

Setting "Logical output sends out One 1 bit object":
If logical function = 1 -> Object value 1/0
If logical function = 0 -> Object value 1/0

Communication object logical function AND n°1 sends out	if status modification of logical function / if status of logical function becomes 1/0 / if status modification of logical function and periodical / if status of logical function becomes 1/0 and periodical

When the logical output sends two 8 bit objects:

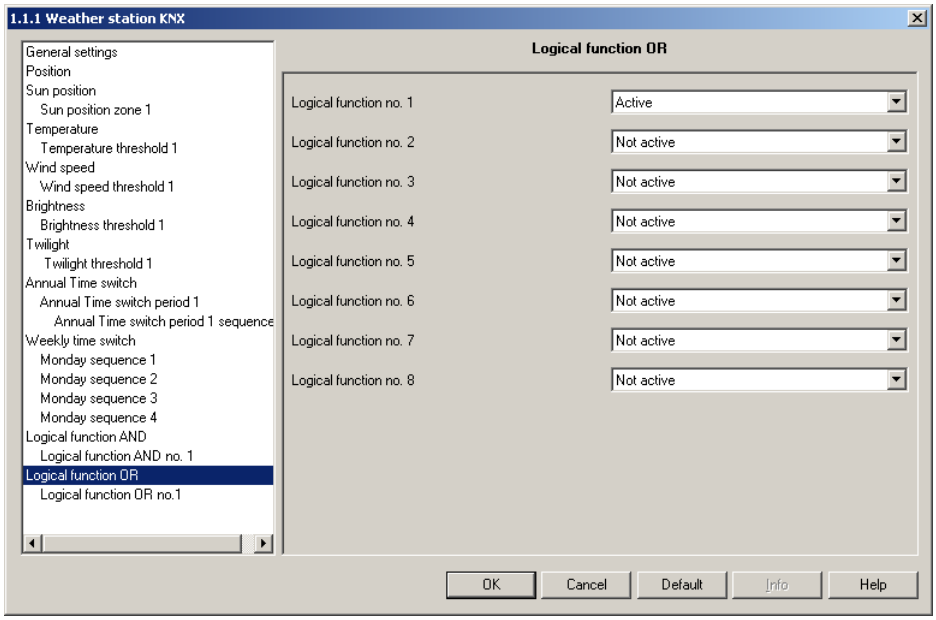


Setting "Logical output sends out Two 8 bit objects"
If logical function = 1 -> Value object A 0 ... 255
If logical function = 0 -> Value object A 0 ... 255
If logical function = 1 -> Value object B 0 ... 255
If logical function = 0 -> Value object B 0 ... 255

Objects emission logical function n°1, outputs A and B	if status modification of logical function / if status of logical function becomes 1/0 / if status modification of logical function and periodical / if status of logical function becomes 1/0 and periodical

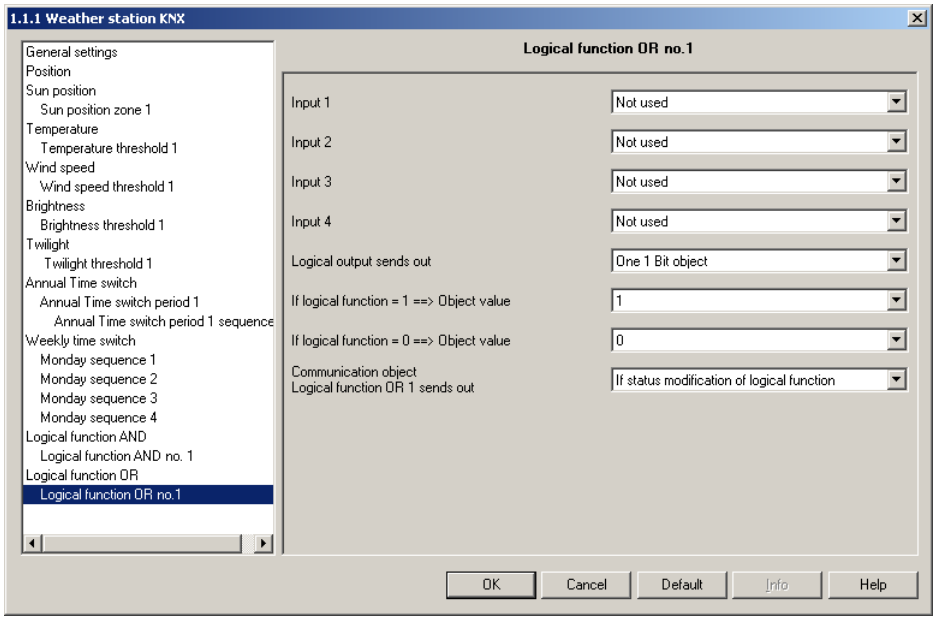
Linking inputs of the AND logical function
not used
Night = 1
Night = 0
Twilight threshold 1 to 3
Twilight threshold 1 to 3 inverted
Brightness threshold 1 to 3
Brightness threshold 1 to 3 inverted
Annual time switch 1. Period Nb 1 to 3
Annual time switch 1. Period Nb 1 to 3 inverted
Communication object Logical input 1 to 8
Communication object Logical input 1 to 8 inverted
Rain Yes
Rain no
Sun in zone 1 to 5
No sun in zone 1 to 5
Temperature default
Inverted temperature default
Wind speed default
Inverted wind speed default
Temperature threshold 1 to 4
Temperature threshold 1 to 4 inverted
Wind threshold 1 to 3
Wind threshold 1 to 3 inverted
Weekly time switch Monday to Sunday 1 to 3
Weekly time switch Monday to Sunday 1 to 4
Weekly time switch OR 1 to 4

2.12 Logical function OR



Logical function 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8	Not active / Active

Logical function OR 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8



Logical output sends out	One 1 bit object / Two 8 bit objects

All parameters of the OR logical function correspond to those of the AND logical function.

Linking inputs of the OR logical function

The linking inputs of the OR logical function correspond to those of the AND logical function.
In addition, the following inputs are available to the OR logical function:

AND logical output 1
AND logical output 1 reversed
AND logical output 2
AND logical output 2 reversed
AND logical output 3
AND logical output 3 reversed
AND logical output 4
AND logical output 4 reversed
AND logical output 5
AND logical output 5 reversed
AND logical output 6
AND logical output 6 reversed
AND logical output 7
AND logical output 7 reversed
AND logical output 8
AND logical output 8 reversed

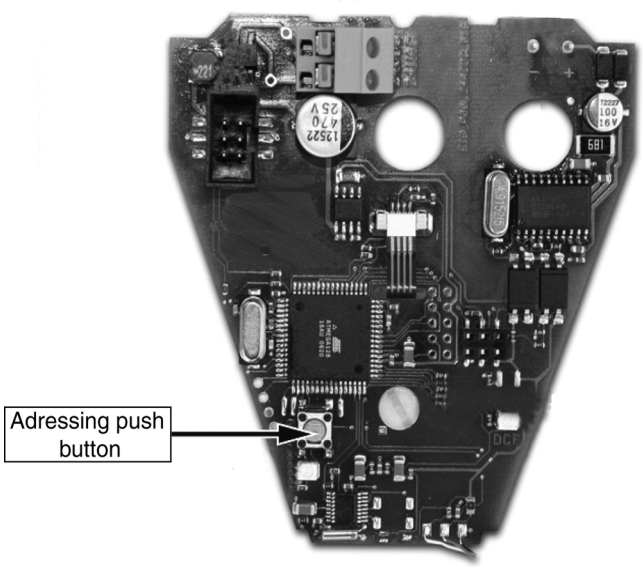
3. Main characteristics

Max. number of group addresses	254
Max. number of links	255
Objects	221

4. Physical addressing

4.1 Before installing the weather station

To perform physical addressing or to check for the presence of the bus voltage, press the addressing push button located on the printed circuit.
Indicator on = Bus is present and device is in programming mode.
The device remains in programmig mode until the physical address has been transmitted by ETS.



4.2 After installing the weather station

A physical address is factory-set (15.15.250).
We recommend you to modify this physical address using the ETS software.
This step saves you from using the addressing push button of the weather station located in high altitude (on the roof).